BUNN®

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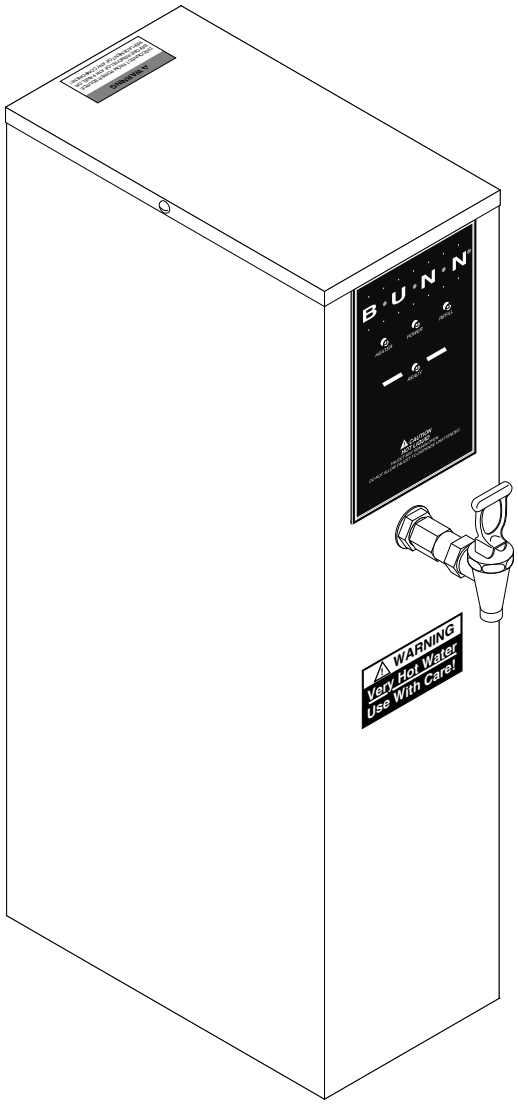

OPERATING & SERVICE MANUAL

BUNN-O-MATIC CORPORATION

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INTRODUCTION

This equipment heats and dispenses water on demand for beverages and cooking purposes. It has a panel above the faucet that indicates the status of the dispenser. This equipment is for indoor use, either wall-mounted or on a sturdy counter or shelf.

WARRANTY

Bunn-O-Matic Corp. ("Bunn") warrants the equipment manufactured by it to be commercially free from defects in material and workmanship existing at the time of manufacture and appearing within one year from the date of installation. In addition:

1.) Bunn warrants electronic circuit and/or control boards to be commercially free from defects in material and workmanship for two years from the date of installation.

2.) Bunn warrants the compressor on refrigeration equipment to be commercially free from defects in material and workmanship for two years from the date of installation.

3.) Bunn warrants that the grinding burrs on coffee grinding equipment will grind coffee to meet original factory screen sieve analysis for three years from date of installation or for 30,000 pounds of coffee, whichever comes first.

This warranty does not apply to any equipment, component or part that was not manufactured by Bunn or that, in Bunn's judgement, has been affected by misuse, neglect, alteration, improper installation or operation, improper maintenance or repair, damage or casualty.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The agents, dealers or employees of Bunn are not authorized to make modifications to this warranty or to make additional warranties that are binding on Bunn. Accordingly, statements by such individuals, whether oral or written, do not constitute warranties and should not be relied upon.

The Buyer shall give Bunn prompt notice of any claim to be made under this warranty by telephone at (217) 529-6601 or by writing to Post Office Box 3227, Springfield, Illinois, 62708-3227. If requested by Bunn, the Buyer shall ship the defective equipment prepaid to an authorized Bunn service location. If Bunn determines, in its sole discretion, that the equipment does not conform to the warranty, Bunn shall repair the equipment with no charge for parts during the warranty period and no charge for labor by a Bunn Authorized Service Representative during the warranty period. If Bunn determines that repair is not feasible, Bunn shall, at its sole option, replace the equipment or refund the purchase price for the equipment.

THE BUYER'S REMEDY AGAINST BUNN FOR THE BREACH OF ANY OBLIGATION ARISING OUT OF THE SALE OF THIS EQUIPMENT, WHETHER DERIVED FROM WARRANTY OR OTHERWISE, SHALL BE LIMITED, AS SPECIFIED HEREIN, TO REPAIR OR, AT BUNN'S SOLE OPTION, REPLACEMENT OR REFUND.

In no event shall Bunn be liable for any other damage or loss, including, but not limited to, lost profits, lost sales, loss of use of equipment, claims of Buyer's customers, cost of capital, cost of down time, cost of substitute equipment, facilities or services, or any other special, incidental or consequential damages.

USER NOTICES

The notices on this dispenser should be kept in good condition. Replace unreadable or damaged labels.

⚠ WARNING

Very Hot Water

Use With Care!

12593.0000

⚠WARNING

- Fill water tank before turning -on thermostat or connecting appliance to power source.
- Use only on a properly protected circuit capable of the rated load.
- Electrically ground the chassis.
- Follow national/local electrical codes.
- Do not use near combustibles.

FAILURE TO COMPLY RISKS EQUIPMENT DAMAGE, FIRE, OR SHOCK HAZARD

READ THE ENTIRE OPERATING MANUAL BEFORE BUYING OR USING THIS PRODUCT

THIS APPLIANCE IS HEATED WHENEVER CONNECTED TO A POWER SOURCE

00831.0000F 3/98 © 1988 BUNN-O-MATIC CORPORATION

00831.0000

This equipment is to be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration (FDA).

00656.0000

⚠ WARNING

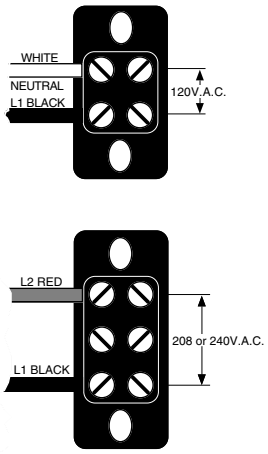
Disconnect from power source before removal of any panel or replacement of any component!

10044.0000

ELECTRICAL REQUIREMENTS

CAUTION - The dispenser must be disconnected from the power source until specified in *Initial Set-Up.*
This dispenser requires 2-wire, grounded service rated 120, 208, or 240 volts ac, 20 amp, single phase.
(Refer to the dispenser's dataplate for exact voltage requirement.)

Electrical Hook-Up



CAUTION – Improper electrical installation will damage electronic components.

1. An electrician must provide electrical service as specified.
2. Using a voltmeter, check the voltage and color coding of each conductor at the electrical source.
3. Remove the upper and lower rear panels. Place the tank heater switch on the electronic control assembly in the "OFF" position.
4. Install a strain relief and the proper electrical wiring to the terminal block.
5. Connect the dispenser to the power source and verify the voltage at the terminal block before proceeding. Reinstall both rear panels.
6. If plumbing is to be hooked-up later be sure the dispenser is disconnected from the power source. If Plumbing has been hooked-up, the dispenser is ready for *Initial Set-Up*.

PLUMBING REQUIREMENTS

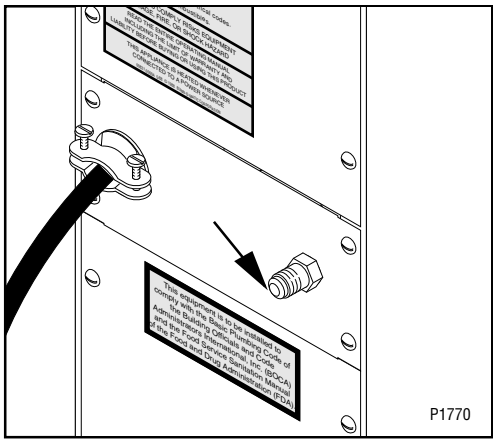
This dispenser must be connected to a **COLD WATER** system with operating pressure between 20 and 90 psi (138 and 620 kPa) from a ½" or larger supply line. A shut-off valve should be installed in the line before the dispenser. Install a regulator in the line when pressure is greater than 90 psi (620 kPa) to reduce it to 50 psi (345 kPa). The water inlet fitting is ¼" flare.

NOTE - Bunn-O-Matic recommends ¼" copper tubing for installations of less than 25 feet and ⅜" for more than 25 feet from the ½" water supply line. At least 18 inches of an FDA approved flexible beverage tubing, such as reinforced braided polyethylene or silicone, before the dispenser will facilitate movement to clean the countertop. It can be purchased direct from Bunn-O-Matic (part number 00326-0000). Bunn-O-Matic does not recommend the use of a saddle valve to install the dispenser. The size and shape of the hole made in the supply line by this type of device may restrict water flow.

This equipment must be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration (FDA).

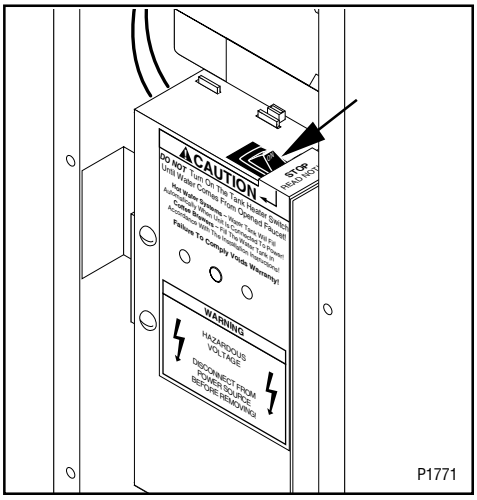
Plumbing Hook-Up

1. Flush the water line and securely attach it to the flare fitting on the rear of the dispenser.
2. Turn-on the water supply.



INITIAL SET-UP

CAUTION - The dispenser must be disconnected from the power source throughout the initial set-up, except when specified in the instructions.



1. Remove the upper rear panel and place the tank heater switch in the “OFF” position and replace the panel.
2. Connect the dispenser to the power source and turn-on the water supply.
3. Water will automatically flow into the tank to the proper level and shut-off. This will take approximately 10 minutes.
4. Disconnect the dispenser from the power source, remove the upper rear panel and place the tank heater switch in the “ON” position, and replace the panel.
5. Connect the dispenser to the power source and wait approximately twenty minutes for the water in the tank to heat.
6. On models with ready indicator, the indicator will glow when the proper water temperature for use is achieved.

NOTE - Discontinue dispensing if the indicator LED turns off. Dispense only when the indicator LED glows.

DRAINING THE DISPENSER

CAUTION - The dispenser must be disconnected from the power source throughout these steps.

1. Disconnect the dispenser from the power source.
2. Shut-off and disconnect the incoming water supply
3. Remove the 4-40 screws at the sides of the top panel.
4. Gently remove one of the grommets from the tank lid.
5. Insert a tube to the bottom of the tank and syphon ALL of the water out. Bunn-O-Matic has a syphon assembly available (#12440.0000) for this purpose.

NOTE - The dispenser must be full using the INITIAL SET-UP steps before reconnecting to the power source.

CLEANING

The use of a damp cloth rinsed in any mild, non-abrasive, liquid detergent is recommended for cleaning all surfaces on Bunn-O-Matic equipment.

WALL MOUNTED INSTALLATION

If the dispenser is wall mounted, the bottom of the dispenser should be at the same height as a counter or table top. Use B.O.M. part #12542.0000 for side mounted Wall Bracket Kit or # 13125.0001 for front mounted Wall Bracket Kit .

SUPPORT FOR LARGE RECEPTACLES

CAUTION: If the dispenser is to be used with larger receptacles such as pitchers or pots, those receptacles must be adequately supported during dispensing of hot water to avoid spillage of very hot water. This support may be provided by a table or counter top, or use B.O.M. part #12599.0000 Shelf Kit

TROUBLESHOOTING

A troubleshooting guide is provided to suggest probable causes and remedies for the most likely problems encountered. If the problem remains after exhausting the troubleshooting steps, contact the Bunn-O-Matic Technical Service Department.

- Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel.
- All electronic components have 120 – 240 volt ac and low voltage dc potential on their terminals. Shorting of terminals or the application of external voltages may result in board failure.
- Intermittent operation of electronic circuit boards is unlikely. Board failure will normally be permanent. If an intermittent condition is encountered, the cause will likely be a switch contact or a loose connection at a terminal or crimp.
- Solenoid removal requires interrupting the water supply to the valve. Damage may result if solenoids are energized for more than ten minutes without a supply of water.
- The use of two wrenches is recommended whenever plumbing fittings are tightened or loosened. This will help to avoid twists and kinks in the tubing.
- Make certain that all plumbing connections are sealed and electrical connections tight and isolated.
- This dispenser is heated at all times. Keep away from combustibles.

WARNING

- Exercise extreme caution when servicing electrical equipment.
- Disconnect the dispenser from the power source when servicing, except when electrical tests are specified.
- Follow recommended service procedures
- Replace all protective shields or safety notices

Problem	Probable Cause	Remedy
Equipment will not operate.	1. No power or incorrect voltage	(A) Check the terminal block for the correct voltage. It should be: a.) 100 to 120 volts ac across the black and white terminals for 100 to 120 volt models or, b.) 200 to 240 volts ac across the red and black terminals for 200 to 240 volt models. (B) Check circuit breakers or fuses.
	2. Safety overflow switch	Refer to Service – safety overflow switch for testing procedures. See page 17.

TROUBLESHOOTING (cont.)

Problem	Probable Cause	Remedy
Automatic refill will not operate after drawing hot water.	1. No water	Check plumbing and shut-off valves.
	2. Water strainer/flow control	(A) Direction of flow arrow must be pointing towards dispenser.
		(B) Remove the strainer/flow control and check for obstructions. Clear or replace.
	3. Safety overflow switch	Refer to Service – safety overflow switch for testing procedures. See page 17.
	4. Liquid level system	Refer to Service – electronic controls for testing procedures. See page 10.
	5. Solenoid valve	Refer to Service – solenoid valve for testing procedures. See page 18.
Water flows into the tank continuously (Dispenser disconnected from power source).	1. Solenoid valve	Refer to Service – solenoid valve for testing procedures. See page 18.
Water flows into the tank continuously (Dispenser connected to power source).	1. Liquid level system	Refer to Service – electronic controls for testing procedures. See page 10.
Water is cold.	1. Tank heater switch	Tank heater switch must be in the “ON” position.
	2. Safety overflow switch	Refer to Service – safety overflow switch for testing procedures. See page 17.
	3. Limit thermostat	Refer to Service – limit thermostat for testing procedures. See page 16.

CAUTION – Do not eliminate or bypass limit thermostat. Use only B.O.M. replacement part #23717.0001.

	4. Tank heater	Refer to Service – tank heater for testing procedures. See page 19.
	5. Temperature control	Refer to Service – electronic controls for testing procedures. See page 10.

TROUBLESHOOTING (cont.)

Problem	Probable Cause	Remedy
Water boils continuously.	1. Temperature control	Refer to Service – electronic controls for testing procedures. See page 10.
	2. Lime build-up	Inspect the tank assembliy for excess lime deposits. Delime as required.

CAUTION – Tanks and tank components should be delimed reglarly depending on local water conditions. Excessive mineral build-up on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.

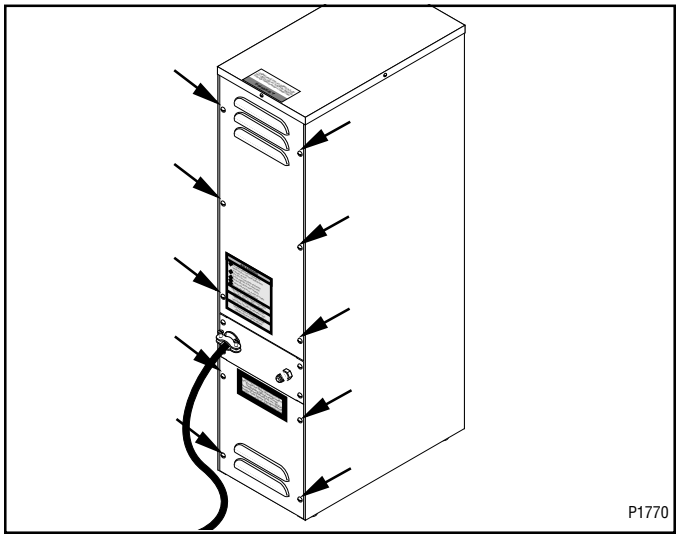
Dispenser is making unusual noises.	1. Solenoid valve	The nut on top of the solenoid valve must be tight or it will vibrate during operation.
	2. Plumbing lines	Plumbing lines should not be resting on the counter top.
	3. Water supply	(A) The dispenser must be connected to a cold water line. (B) Water pressure to the dispenser must not be higher than 90 psi (620 kPa). Install a regulator if necessary to lower the working pressure to approximately 50 psi (345 kPa).
Ready indicator will not light. (when temperature is within 4° of its selected setting.)	1. Temperature control	Refer to Service – electronic controls for testing procedures. See page 10.
	2. Ready Indicator LED	Replace the indicator LED.

SERVICE

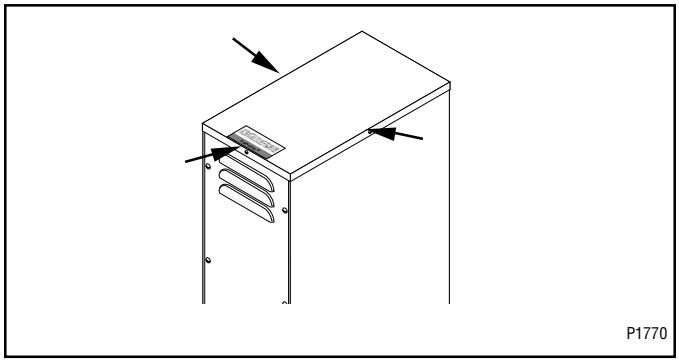
This section provides procedures for testing and replacing various major components used in this dispenser should service become necessary. Refer to Troubleshooting for assistance in determining the cause of any problem.

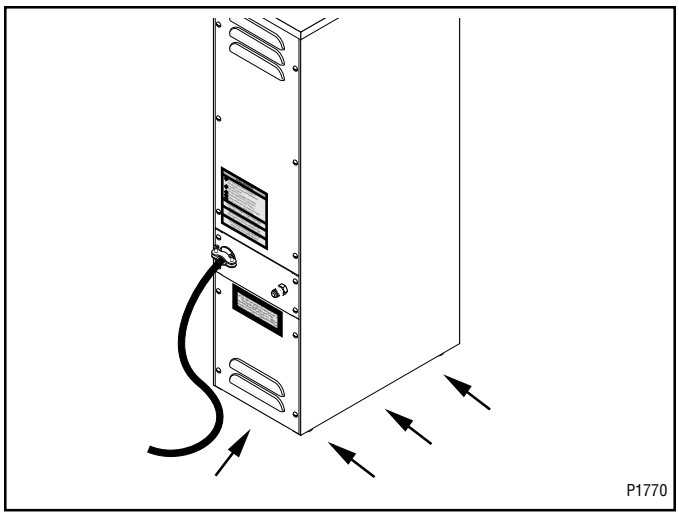
Component Access

WARNING – Disconnect the dispenser from the power source before the removal of any panel or the replacement of any component.



The check valve, electronic control assembly, safety overflow switch, solenoid valve, overflow tube temperature sensor and terminal block are located at the rear of the dispenser. Access is gained by removing the upper and lower rear panels. The upper is attached with six 8-32 slotted-head screws. The lower is attached with four 8-32 slotted-head screws. The middle panel must not be removed from the dispenser.





The limit thermostat, liquid level probe, tank heater, and temperature sensor are located at the top of the dispenser. Access is gained by removing the top lid, attached with three 4-40 slotted-head screws.

The triac assembly is located beneath the tank. Access is gained by removing four feet and the bottom panel attached with seven 8-32 slotted-head screws.

NOTE - Completely drain the tank before tipping the dispenser.

WARNING – Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel. Disconnect the dispenser from the power source when servicing, except when electrical tests are required and the test procedure specifically states to connect the dispenser to the power source.

Electronic Controls 10
Limit Thermostat 16
Safety Overflow Switch 17
Solenoid Valve 18
Tank Heater 19

Electronic Control Assembly Troubleshooting:
Check these items first

- Is circuit board popped-out of bracket?
- Is circuit board wet due to misaligned overflow tube?
- Is water in overflow cup activating float switch?
- Is overflow cup not making good contact with tank?
- Is dispenser being operated with panels removed?

SERVICE (cont.)

Electronic Controls

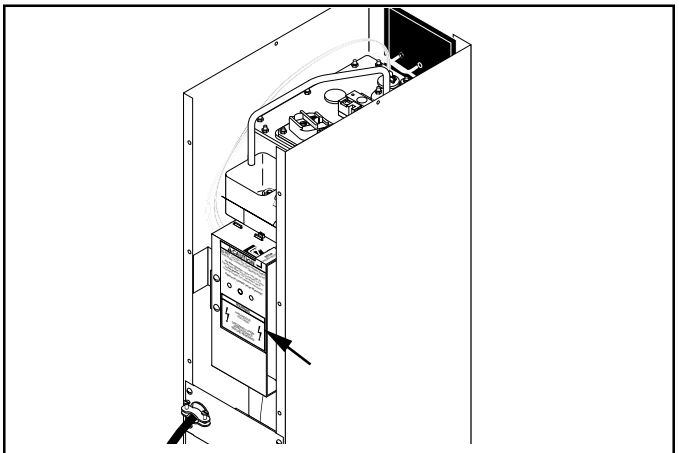


FIG. 1 ELECTRONIC CONTROL

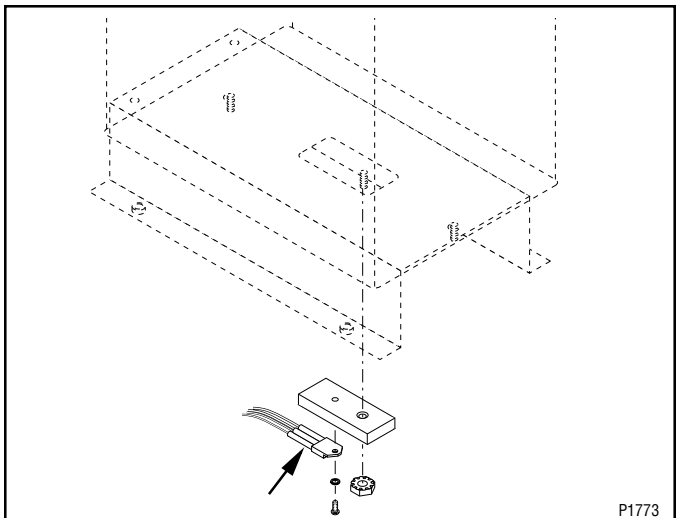


FIG. 2 TRIAC

Location:

The electronic control assembly is located inside the rear of the dispenser. Access will also be needed to the temperature sensor, overflow tube temperature sensor, and liquid level probe located on the tank lid and to the triac assembly located beneath the tank.

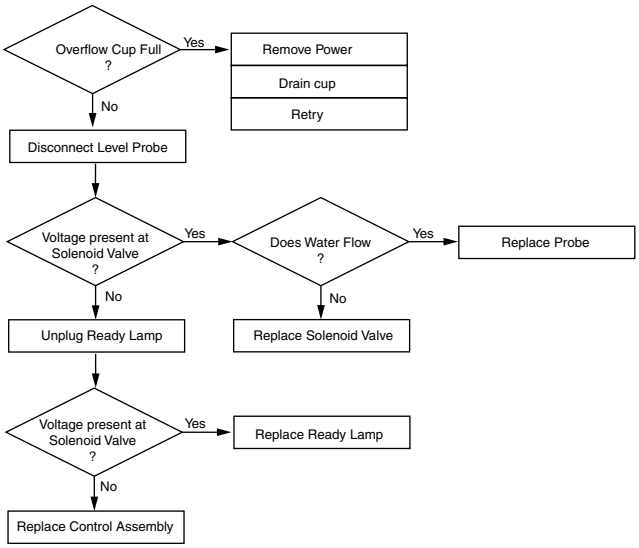
General:

This system controls the liquid level and water temperature of the dispenser. These two functions act independently of each other and should be tested separately.

Liquid Level Control Flow Charts

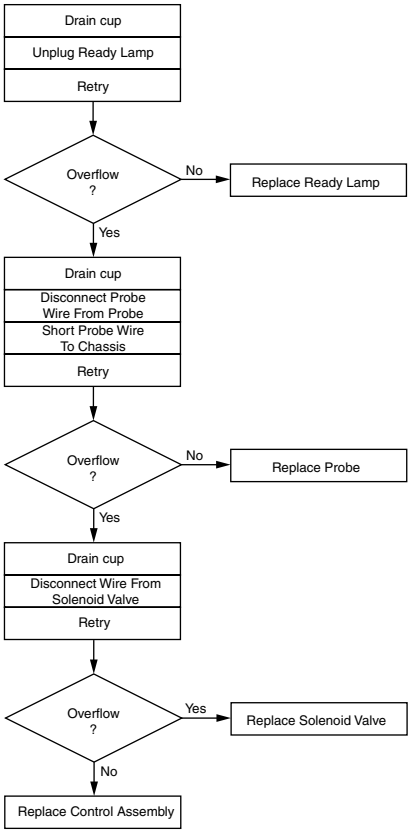
H5E, H5X LIQUID LEVEL CONTROL

PROBLEM: Does Not Refill



H5E, H5X LIQUID LEVEL CONTROL

PROBLEM: Overflows



SERVICE (cont.)

Electronic Controls (cont.)

Liquid Level Control Test Procedure

1. Disconnect the dispenser from the power source.
2. Check the voltage across terminals 3 & 4 of the electronic control assembly with a voltmeter. Connect the dispenser to the power source. The indication must be:
   a.) 100 to 120 volts ac for 100 to 120 volt models or
   b.) 200 to 240 volts ac for 200 to 240 volt models.
3. Disconnect the dispenser from the power source. If voltage was present as described, proceed to #4. If voltage was not present as described, refer to the Wiring Diagrams and check the dispenser wiring harness.
4. Remove the pink wire from terminal 5 of the electronic control assembly.
5. Check the voltage across terminals 1 & 4 of the electronic control assembly with a voltmeter. Connect the dispenser to the power source. The indication must be:
   a.) 100 to 120 volts ac for 100 to 120 voltmodels or
   b.) 200 to 240 volts ac for 200 to 240 volt models after a delay of approximately 5 seconds.
6. Disconnect the dispenser from the power source.

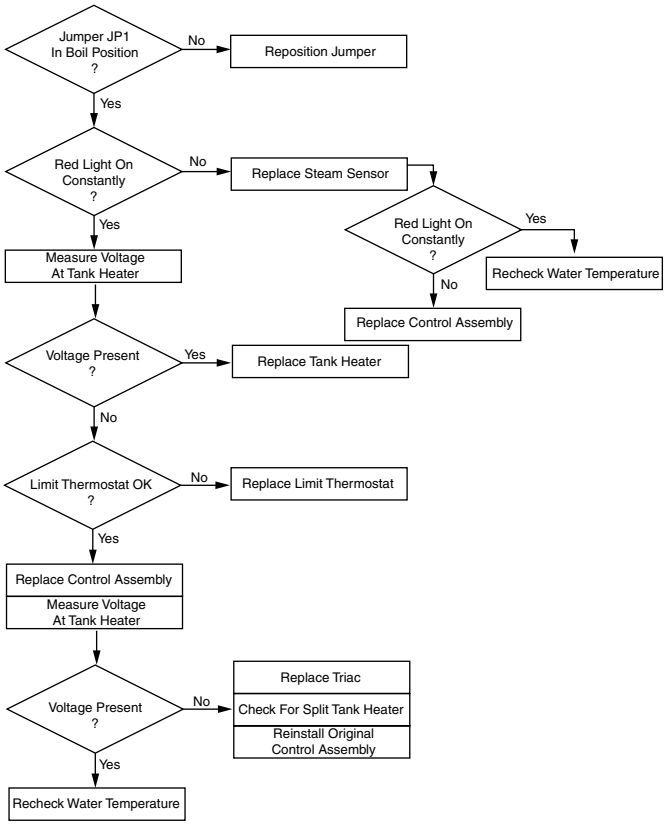
If voltage was present as described, the liquid level control of the system is operating properly, proceed to #7.
If voltage was not present as described, replace the electronic control assembly and the temperature sensor in the tank lid.

NOTE - Each electronic control assembly is calibrated to a temperature sensor. Both components MUST be replaced as a set.

Temperature Control Flow Charts

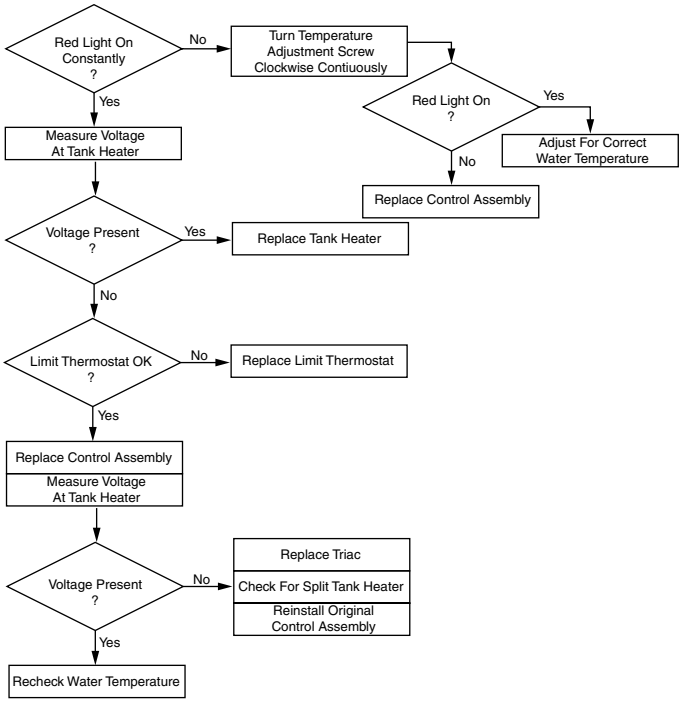
H5X THERMOSTAT

PROBLEM: Water Not Hot Enough



H5E THERMOSTAT

PROBLEM: Water Not Hot Enough



SERVICE (cont.)

Electronic Controls (cont.)

7. Reconnect the pink wire to terminal 5 of the electronic control assembly.
8. Loosen the compression fitting, remove the probe from the tank lid, and inspect it for mineral deposits. Replace it if necessary. Keep the exposed ends of the probe away from any metal surface of the dispenser.
9. Check the voltage across terminals 1 & 4 of the electronic control assembly with a voltmeter. Connect the dispenser to the power source. The indication must be:
   a.) 100 to 120 volts ac for 100 to 120 volt models or
   b.) 200 to 240 volts ac for 200 to 240 volt models after a delay of approximately 5 seconds.
10. Touch the screw head end of the probe to the dispenser housing. The indication must be 0.
11. Move the probe away from the dispenser housing. The indication must again be:
    a.) 100 to 120 volts ac for 100 to 120 volt models or
    b.) 200 to 240 volts ac for 200 to 240 volt models after a delay of approximately 5 seconds.
12. Disconnect the dispenser from the power source.

If voltage was present as described, reinstall the probe, the sensing function of the system is operating properly.
If voltage was not present as described, check the pink probe wire and the green ground wire for continuity and/or replace the probe.

Temperature Control Test Procedure

1. Disconnect the dispenser from the power source.
2. Check the voltage across terminals 3 & 4 of the electronic control circuit board with a voltmeter. Connect the dispenser to the power source.The indication must be:
   a.) 100 to 120 volts ac for 100 to 120 volt models or
   b.) 200 to 240 volts ac for 200 to 240 volt models.
3. Disconnect the dispenser from the power source.

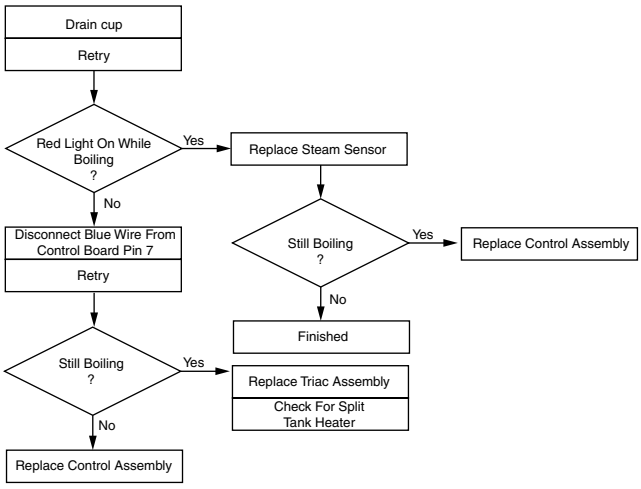
If voltage was present as described, proceed to #4.
If voltage was not present as described, refer to the Wiring Diagram and check the dispenser wiring harness.

4. Connect the dispenser to the power source and place the tank heater switch in the “ON” position.
5. Observe the red indicator on the electronic control circuit board.
6. Disconnect the dispenser from the power source.

Temperature Control Flow Charts (cont.)

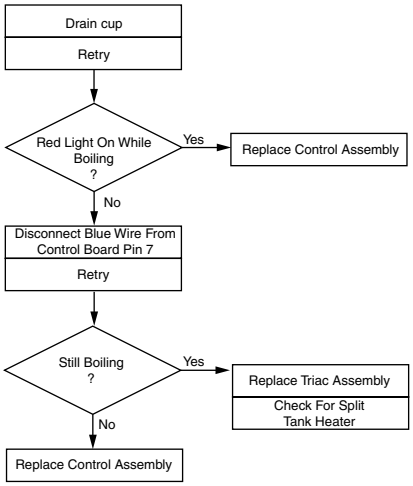
H5X THERMOSTAT

PROBLEM: Boils Excessively - Fills Cup



H5E THERMOSTAT

PROBLEM: Boils



Electronic Controls (cont.)

If the indicator was on or blinking, the temperature sensor is operating properly, proceed to #7.
If the indicator was off, check the sensor connection on the electronic control circuit board and/or replace the temperature sensor and the electronic control assembly.

NOTE - Each temperature sensor is calibrated to an electronic control assembly. Both components MUST be replaced as a set.

7. Check the voltage across the tank heater terminals with a voltmeter. Connect the dispenser to the power source. The indication must be:
   a.) 100 to 120 volts ac for 100 to 120 volt models or
   b.) 200 to 240 volts ac for 200 to 240 volt models while the red indicator on the circuit board is on or blinking.
8. Disconnect the dispenser from the power source.

If voltage was present as described, the temperature control of the system is operating properly.
If voltage was not present as described, contact Bunn-O-Matic to order an electronic control assembly, temperature sensor, and triac assembly for evaluation and proceed to #9.

9. Replace the electronic control assembly and temperature sensor.

NOTE - Each electronic control assembly is calibrated to a temperature sensor. Both components MUST be replaced as a set.

10. Check the voltage across the tank heater terminals with a voltmeter. Connect the dispenser to the power source. The indication must be:
    a.) 100 to 120 volts ac for 100 to 120 volt models or
    b.) 200 to 240 volts ac for 200 to 240 volt models while the red indicator on the circuit board is on or blinking.
11. Disconnect the dispenser from the power source.

If voltage was present as described, return the new triac assembly to Bunn-O-Matic for credit. The temperature control of the system is operating properly.
If voltage was not present as described, reinstall your existing electronic control assembly and temperature sensor, and proceed to #12.

12. Replace the triac assembly.
13. Check the voltage across the tank heater terminals with a voltmeter. Connect the dispenser to the power source. The indication must be:
    a.) 100 to 120 volts ac for 100 to 120 volt models or
    b.) 200 to 240 volts ac for 200 to 240 volt models while the red indicator on the circuit board is on or blinking.
14. Disconnect the dispenser from the power source.

If voltage was present as described, the temperature control of the system is operating properly. Return the new electronic control assembly and temperature sensor to Bunn-O-Matic for credit.

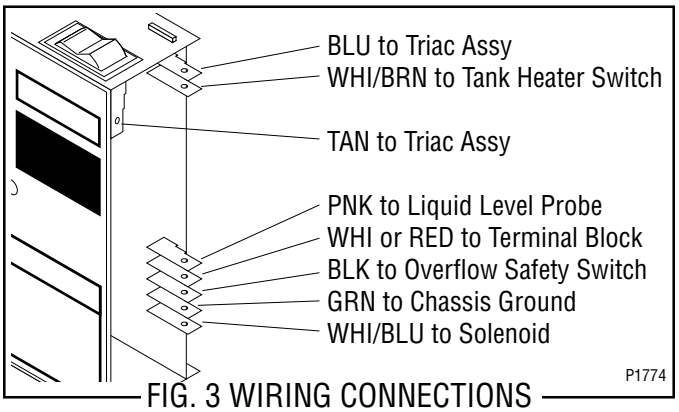
SERVICE (cont.)

Electronic Controls (cont.)

Electronic Controls Removal and Replacement

NOTE - Each electronic control assembly is calibrated to a temperature sensor probe. Both components MUST be replaced as a set.

1. Remove all wires from the electronic control assembly terminals.
2. Remove the two 8-32 screws holding the electronic control assembly to the component bracket.
3. Disconnect the temperature sensor, overflow tube temperature sensor, and indicator wires from the left side of the electronic control assembly board.
4. Remove the temperature sensor from the grommet in the tank lid.
5. Install the new temperature sensor into the grommet on the tank lid. Route the wires to the location of the new electronic control assembly.
6. Attach the temperature sensor, overflow tube temperature sensor, and indicator wires to the electronic control assembly.
7. Fasten the new electronic control assembly to its bracket.


BLU to Triac Assy
WHI/BRN to Tank Heater Switch
TAN to Triac Assy
PNK to Liquid Level Probe
WHI or RED to Terminal Block
BLK to Overflow Safety Switch
GRN to Chassis Ground
WHI/BLU to Solenoid
P1774
FIG. 3 WIRING CONNECTIONS

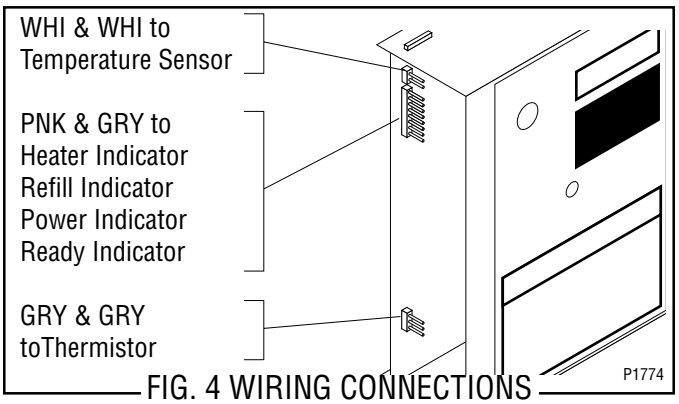


FIG. 4 WIRING CONNECTIONS

8. Reconnect the wires.
9. Review the initial set-up procedures.

Triac Assembly Removal and Replacement

NOTE - Each triac installation requires the use of an approved silicone heat sink compound. Bunn-O-Matic recommends the use of Dow Corning 340 compound or equivalent. It can be purchased direct from Bunn-O-Matic (part # 12572.0002).

1. Place the tank heater switch on the electronic control assembly in the “OFF” position.
2. Completely drain the tank.
3. Carefully set the dispenser on its face (faucet side).
4. Remove the four feet attached with four 8-32 phillips-head screws.
5. Remove the bottom panel and four feet attached with seven 8-32 slotted-head screws.
6. Remove the existing triac assembly held in place with a 10-32 hex keps nut.
7. Apply a small amount of the silicone heat sink compound to the copper heat sink.
8. Securely fasten the new triac assembly to the bottom of the tank in the same relative position as the one removed. Bunn-O-Matic recommends tightening the nut to a torque setting of approximately 18 inch-pounds.
9. Route the wires up around the rear of the dispenser.
10. Reinstall the bottom panel and four feet.
11. Stand the dispenser upright.
12. Disconnect the other ends of the old triac assembly wires.
13. Connect the TAN and BLU wires with spade terminals of the new assembly to the electronic control assembly, FIG. 3.
14. Connect the BLU wire with the ring terminal to the tank heater, FIG. 13.
15. Connect the WHI/VIO wire of the new assembly to the WHI or RED terminal at the terminal block.

SERVICE (cont.)

Electronic Controls (cont.)

Adjustments

This dispenser can maintain any temperature between 85 and 208°F by selecting and setting one of five variable range control potentiometers.

1. Fill the dispenser according to the steps in the Initial Set-up.

2. Select the range containing the desired temperature by plugging the two-pin socket onto the mating connector of one of the range control boards. Both pins must be connected to the socket.

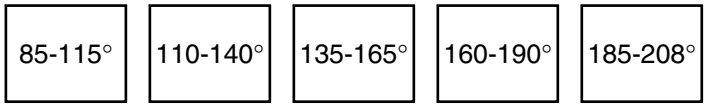
3. Place the tank heater switch in the "ON" position and observe the glowing red indicator near the right edge of the control board. The controller is applying full power to the heater when the indicator is on all the time. The indicator will begin to flash as the temperature nears the set point. The set temperature is reached when the indicator flashes only very briefly. The water is hotter than the set temperature when the indicator remains off. This initial setting will only be an approximation.

4. Take the temperature of the stream of water immediately below the faucet as it flows from the dispenser with an accurate thermometer. Do not take the temperature of water collected in a container.

5A. **TO INCREASE THE TEMPERATURE**
Turn the potentiometer screw of the temperature range selected in step 2 in a clockwise direction with a small screwdriver. One full turn of the screw will result in an approximate 1°F change. Allow the temperature to stabilize as described in step 3 and repeat step 4. Continue until the desired water temperature is achieved.

5B. **TO DECREASE THE TEMPERATURE**
Turn the potentiometer screw of the temperature range selected in step 2 in a counterclockwise direction with a small screwdriver. One full turn of the screw will result in an approximate 1°F change. Draw a large quantity of water at the faucet, allow the temperature to stabilize as described in step 3 and repeat step 4. Continue until the desired water temperature is achieved.

NOTE - The entire adjustment span is approximately 25 complete revolutions. The potentiometer will cease to adjust when turned too far in either direction. It is not damaged, simply turn it back a few turns and try again.



P1775

FIG. 5 TEMPERATURE RANGE SELECTION

Limit Thermostat

Location:

The limit thermostat is located on the tank lid.

To test the limit thermostat, access will also be needed to the terminal block located at the rear of the dispenser.

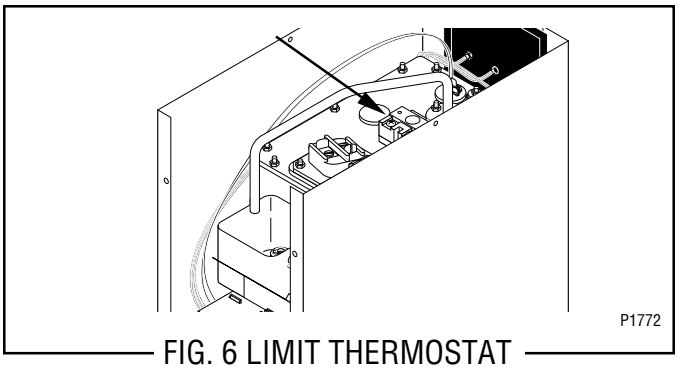


FIG. 6 LIMIT THERMOSTAT

Test Procedure:

1. Disconnect the dispenser from the power source.
2. There are two black wires on the limit thermostat terminals. One comes from the terminal block. The other goes directly to the tank heater terminal. Remove the black wire at the limit thermostat coming from the terminal block.
3. Check the voltage across the black wire removed from the limit thermostat and the white wire or red wire of the terminal block with a voltmeter. Connect the dispenser to the power source. The indication must be:
   a.) 100 to 120 volts ac for 100 to 120 volt models or
   b.) 200 to 240 volts ac for 200 to 240 volt models.
4. Disconnect the dispenser from the power source.

If voltage was present as described, reconnect the black wire and proceed to #5.

If voltage was not present as described, refer to the Wiring Diagrams and check the dispenser wiring harness.

5. Check for continuity across the terminals of the limit thermostat.

If continuity is not present as described, the circuit is broken. Press the reset button of the limit thermostat and recheck for continuity.

If continuity is not present as described, replace the limit thermostat.

Removal and Replacement:

1. Remove both wires from the limit thermostat terminals.
2. Remove the two #10-32 nuts attaching the limit thermostat to the top of the tank.
3. Install the new limit thermostat and secure into place with two #10-32 nuts.
4. Refer to FIG. 7 when reconnecting the wires.

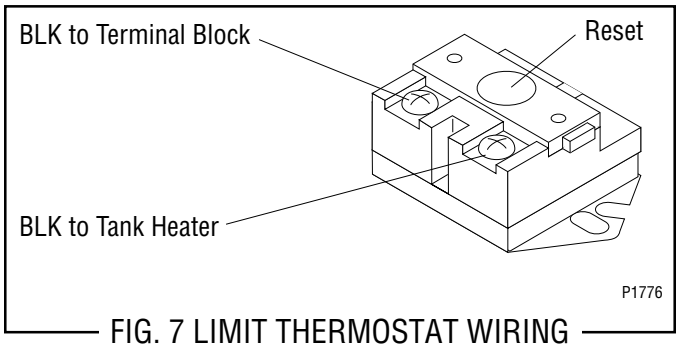


FIG. 7 LIMIT THERMOSTAT WIRING

SERVICE (cont.)

Safety Overflow Switch

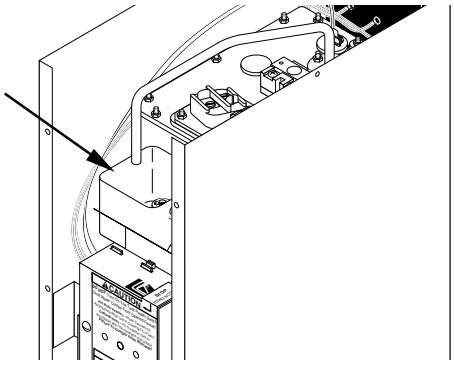


FIG. 8 SAFETY OVERFLOW SWITCH

Location:

The safety overflow switch is located inside the rear of the dispenser inside the copper overflow cup.

For testing or removal of the safety overflow switch, access may also be needed by removing the two screws attaching the electronic control assembly to its mounting bracket.

Test Procedure:

1. Once voltage is verified at the power source, check for continuity across the safety overflow switch red wires only until the plastic float is raised and check that continuity returns when the plastic float is again lowered.

If continuity is present as described, reconnect each of the red wires to the black wires, the safety overflow switch is operating properly.

If continuity is not present as described, replace the safety overflow switch.

Removal and Replacement:

1. Disconnect the black wires from the safety overflow switch.
2. Remove the nut beneath the copper overflow cup.
3. Remove the entire switch assembly from the cup.
4. Place the new switch assembly into the cup, wires first. Make sure that a gasket is in place around the threaded switch stem.

NOTE - The magnets must be at the top of the float and there must be NO stainless steel washers installed for the safety overflow switch to operate properly.

5. Install the nut beneath the copper overflow cup. Be sure not to overtighten.
6. Reconnect the wires, FIG. 9.

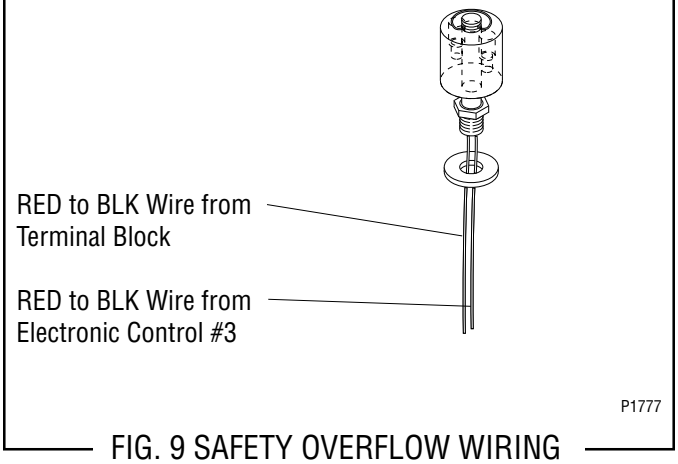


FIG. 9 SAFETY OVERFLOW WIRING

SERVICE (cont.)

Solenoid Valve

Location:

The solenoid valve is located inside the rear of the dispenser on the right side near the bottom.

To test the solenoid valve, access will also be needed to the electronic control assembly.

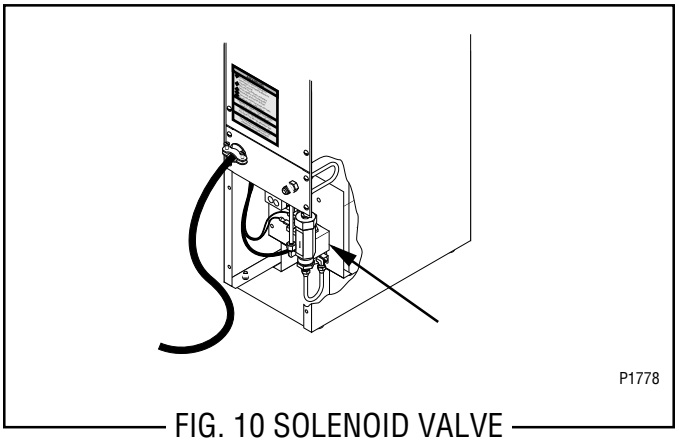


FIG. 10 SOLENOID VALVE

Test Procedure:

1. Disconnect the dispenser from the power source and turn-off the water supply to the dispenser.
2. Remove the pink wire from terminal 5 of the electronic control assembly.
3. Check the voltage across the solenoid valve coil terminals with a voltmeter. Connect the dispenser to the power source. The indication must be:
   a.) 100 to 120 volts ac for 100 to 120 volt models or
   b.) 200 to 240 volts ac for 200 to 240 volt models after a delay of approximately 5 seconds.
4. Disconnect the dispenser from the power source.

If voltage was present as described, proceed to #5.

If voltage was not present as described, refer to the Wiring Diagrams and check the dispenser wiring harness.

5. Remove both wires from the solenoid valve coil terminals.
6. Check for continuity across the solenoid valve coil terminals.

If continuity is present as described, reconnect the wires and proceed to #7.

If continuity is not present as described, replace the solenoid valve coil.

7. Check the solenoid valve for coil action. Connect the dispenser to the power source. Listen carefully in the vicinity of the solenoid valve for a “clicking” sound after approximately 5 seconds, as the coil magnet attracts the plunger.
8. Disconnect the dispenser from the power source.
9. Reconnect the pink wire to terminal 5 of the electronic control assembly.

If the sound was heard as described and water will not pass through the solenoid valve, there may be a blockage in the water line before or after the solenoid valve or the solenoid valve may require inspection for wear and removal of waterborne particles.

If the sound was not heard as described, replace the solenoid valve.

Removal and Replacement:

1. Remove all wires from the solenoid valve coil.
2. Turn-off the water supply to the dispenser.
3. Disconnect the water lines to and from the solenoid valve.
4. Remove the two 8-32 slotted-head screws holding the solenoid valve and mounting bracket to the component bracket.
5. Lift-out the solenoid valve.
6. Remove the two 10-32 slotted-head screws holding the solenoid valve to its mounting bracket.
7. Securely install the new solenoid valve to its mounting bracket. The direction of flow arrow must be pointing towards the tank lid.
8. Attach the solenoid valve and mounting bracket to the component bracket.
9. Securely fasten the water lines to and from the solenoid valve.
10. Reconnect the wires, FIG. 11.

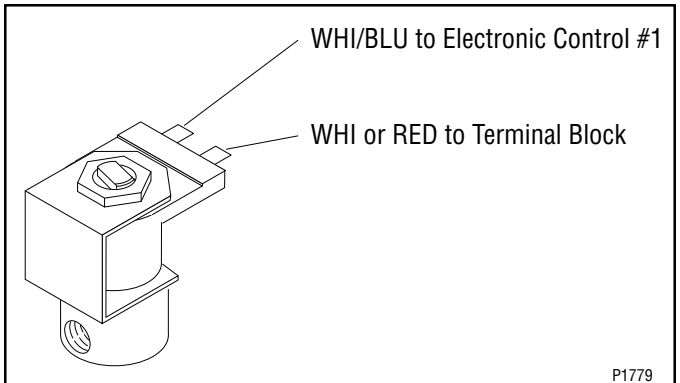


FIG. 11 SOLENOID VALVE WIRING

Tank Heater

Location:

The tank heater is located in the tank lid.

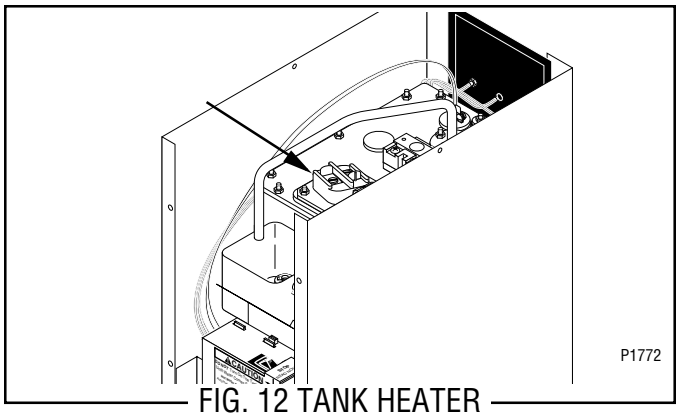


FIG. 12 TANK HEATER

Test Procedure:

1. Disconnect the dispenser from the power source.
2. Check the voltage across the terminals of the tank heater with a voltmeter. Connect the dispenser to the power source. The indication must be:
   a.) 100 to 120 volts ac for 100 to 120 volt models or
   b.) 200 to 240 volts ac for 200 to 240 volt models.
3. Disconnect the dispenser from the power source.

If voltage is present as described, proceed to #4.
If voltage is not present as described, replace the tank heater.

4. Remove the tank heater from the tank lid and inspect it for cracks in the sheath.

If the sheath shows no sign of damage, proceed to #5.
If the sheath is damaged, replace the tank heater.

5. Check for continuity across the tank heater terminals.

If continuity is present as described, reinstall the tank heater. The tank heater is operating properly.
If continuity is not present as described, replace the tank heater.

Removal and Replacement:

1. Remove the wires to the tank heater.
2. Remove the 8-32 nuts from the tank heater flange.
3. Remove the tank heater.
4. Inspect the tank heater gasket and replace if necessary.
5. Securely install the new tank heater. Be certain of a watertight seal.
6. Reconnect the wires, FIG. 13.

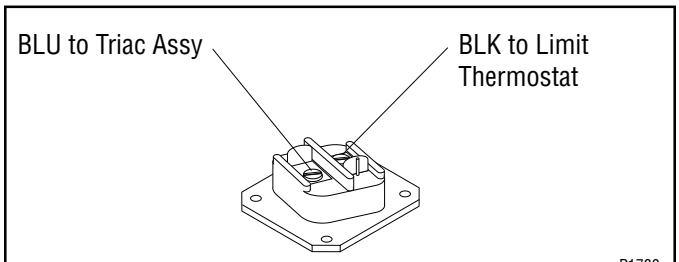
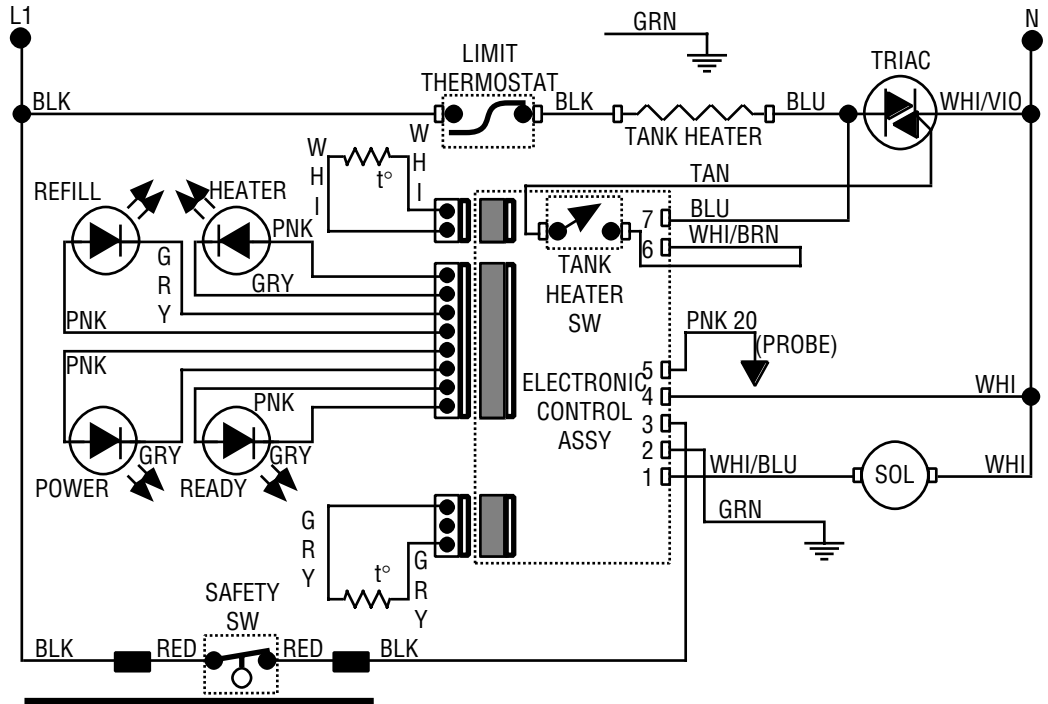


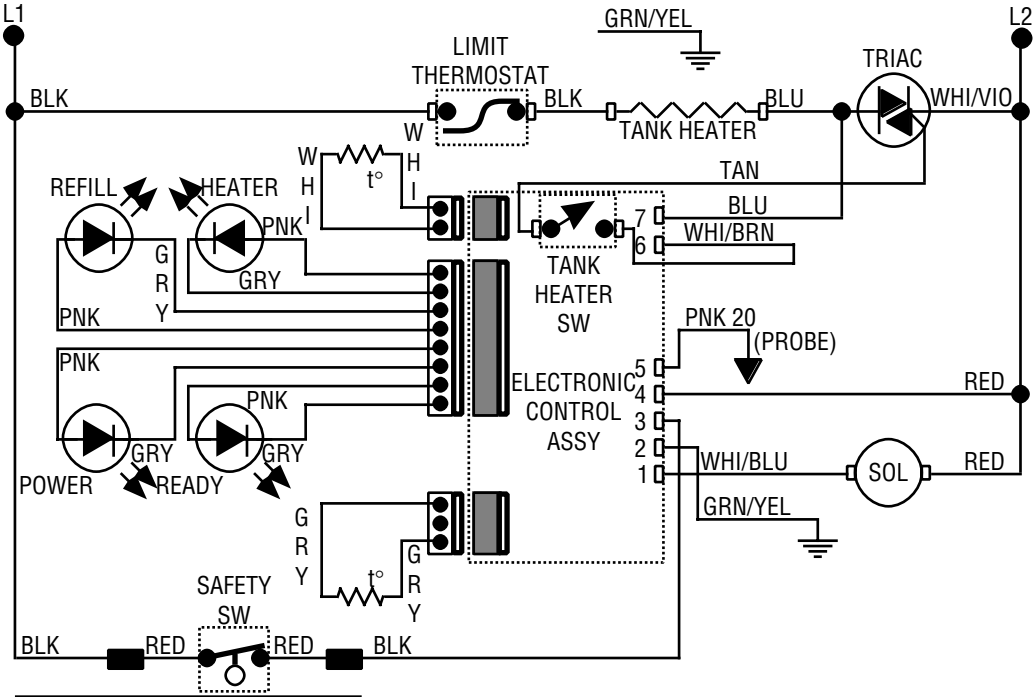
FIG. 13 TANK HEATER WIRING

WIRING DIAGRAMS

SCHEMATIC WIRING DIAGRAM H5X



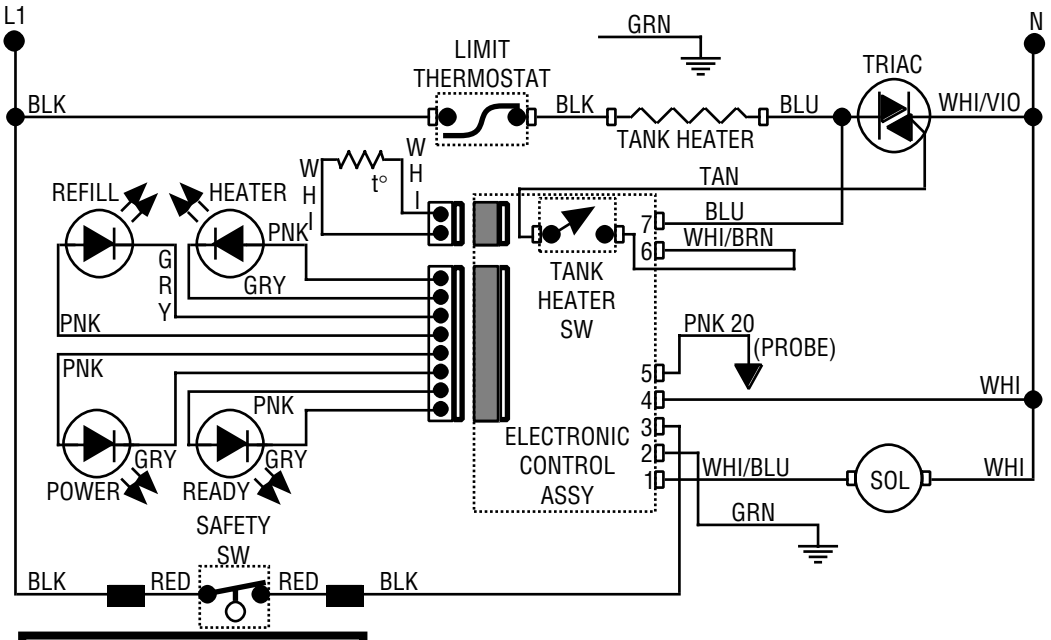
100-120 VOLTS A C
2 WIRE
SINGLE PHASE



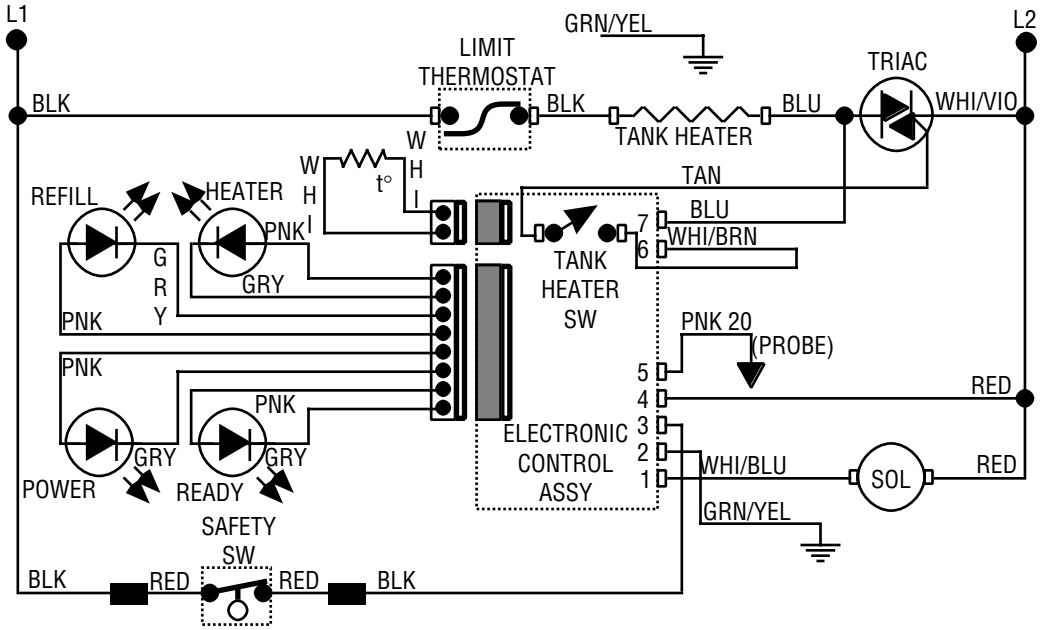
200-240 VOLTS A C
2 WIRE
SINGLE PHASE

WIRING DIAGRAMS

SCHEMATIC WIRING DIAGRAM H5E



100-120 VOLTS A C
2 WIRE
SINGLE PHASE



200-240 VOLTS A C
2 WIRE
SINGLE PHASE